



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/509,698	06/09/2005	Hiroki Kisu	03500.017145	2182
5514 7590 02/13/2008 FITZPATRICK CELLA HARPER & SCINTO 30 ROCKEFELLER PLAZA NEW YORK, NY 10112				
EXAMINER				
SARKAR, ASOK K				
ART UNIT		PAPER NUMBER		
2891				
MAIL DATE		DELIVERY MODE		
02/13/2008		PAPER		

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

# Office Action Summary

## Application No.

10/509,698

## Applicant(s)

KISU ET AL.

## Examiner

Asok K. Sarkar

## Art Unit

2891

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 12 December 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1, 3-8 and 12 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1, 3-8 and 12 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 30 September 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

## Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB-083)
- Paper No(s)/Mail Date \_\_\_\_\_

- 4) ☐ Interview Summary (PTO-413)
- Paper No(s)/Mail Date \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

**DETAILED ACTION**

***Claim Rejections - 35 USC § 102***

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1, 3 and 5 are rejected under 35 U.S.C. 102(b) as being anticipated by Fiedler, US 6,197,387.

Regarding claim 1, Fiedler teaches a method of manufacturing an electrically conductive member having an electrically conductive film on a surface of a substrate, comprising the steps of: (i) applying a colloid solution of a liquid medium and a colloid, said colloid having a core of a metal colloidal particle and a shell of an organic substance (this is inherent in a colloidal solution since the organic moiety adsorbs on the surface of the metal particle to form a charged surface that keeps the colloidal particles suspended in the solution) to a porous surface of the substrate to form a layer containing the colloid on the substrate; and (ii) drying the layer containing the colloid to remove the organic substance and the liquid medium and to anchor the metal colloid particles (this is inherent since the colloidal structure will collapse due to the absorption of the liquid medium and surface active molecules by the porous substrate thereby anchoring the metal colloid particles), thereby forming an electrically conductive layer in

various places of the disclosure especially in column 9, line 65, column 10, lines 6 – 7 and lines 22 – 24 and in column 8, lines 57 – 59.

Regarding claim 3, Fiedler teaches the metal is gold, platinum and palladium in column 7, lines 6 – 13.

Regarding claim 5, Fiedler teaches the method includes the step of forming the layer containing the colloid on the porous surface in a position – selective manner with reference to Figs 1 and 2.

***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains.

Patentability shall not be negated by the manner in which the invention was made.

4. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

5. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

6. Claims 4, 6 – 8 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fiedler, US 6,197,387 in view of the Admitted Prior Art (APR).

Regarding claim 4, Fiedler fails to disclose applying the colloidal solution to the surface by a spin coating method.

The APA teaches that the colloidal solution can be applied to the surface by a spin coating method for the benefit of forming a film with excellent electrical conductivity in page 2, lines 2 – 12.

Therefore, it would have been obvious to one with ordinary skill in the art at the time of the invention to modify Fiedler and apply the colloidal solution to the surface by a spin coating method for the benefit of forming a film with excellent electrical conductivity as taught by the APA in page 2, lines 2 – 12.

Regarding claim 6, Fiedler fails to disclose applying the colloidal solution to the surface by an inkjet method.

The APA teaches that the colloidal solution can be applied to the surface by a inkjet method for the benefit of forming a film with excellent electrical conductivity in page 2, lines 2 – 12 and in 20 – 22.

Therefore, it would have been obvious to one with ordinary skill in the art at the time of the invention to modify Fiedler and apply the colloidal solution to the surface by an inkjet method for the benefit of forming a film with excellent electrical conductivity as taught by the APA in page 2, lines 2 – 12 and in 20 – 22.

Regarding claim 7, Fiedler fails to disclose that the vicinity of the porous surface, including the surface, has a pseudobehmite structure.

The APA teaches applying colloidal solution on a substrate having a porous structure of pseudobehmite type for the benefit of greatly improving the quality of an electrically conductive film by the excellent ink absorbing capacity and high image density of the substrate (see English abstract of JP 2000318308) in page 11, lines 1 – 5.

Therefore, it would have been obvious to one with ordinary skill in the art at the time of the invention to modify Fiedler and supply the porous surface with a pseudobehmite structure for the benefit of greatly improving the quality of an electrically conductive film by the excellent ink absorbing capacity and high image density of the substrate as taught by the APR in page 11, lines 1 – 5.

Regarding claim 8, Fiedler fails to disclose that the following condition is satisfied when it is assumed that an average particle diameter of the metal colloid is  $\Theta_1$  ave and that an average pore diameter of the porous surface is  $\Theta_2$  ave:  $\Theta_1 \text{ ave} \geq \Theta_2 \text{ ave}$ .

However, it would have been obvious to one with ordinary skill in the art at the time of the invention that the relation  $\Theta_1 \text{ ave} \geq \Theta_2 \text{ ave}$  will hold true since otherwise the ink will not be absorbed in the porous layer and the quality of an electrically conductive film will not be so great.

Regarding claim 12, Fiedler teaches using the film in IC chips and semiconductor substrates in column 1, lines 10 – 18, but fails to teach that the electrically conductive member has portions in contact with an organic semiconductor

However, it would have been obvious to one with ordinary skill in the art at the time of the invention that the electrically conductive member has portions in contact with an organic semiconductor since organic semiconductors are known to be used in many commercial OLED and organic TFT devices.

### ***Response to Arguments***

7. Applicant's arguments filed December 12, 2007 have been fully considered but they are not persuasive due to the following reasons.

The Applicant, in their remarks, first points out several advantages about their invention in terms of melting point decrease, anchor effect and savings in production in pages 5 – 8. However, it should be pointed out that none of these are claim limitations. The Applicant alleges, that Fiedler states "the surface intended for deposition of the metal layer can be covered by a porous layer" (column 10, lines 6-7). In contrast thereto, in the present claimed invention the porous layer is covered by a metal layer, which is the opposite structure of Fiedler. This is not persuasive since Fiedler's sentence can be paraphrased as teaching that the surface is covered by a porous layer

before the deposition. Formation of porous layer is further described by the teachings in column 10, lines 10 – 12. Regarding claim 8, the relationship  $\Theta_1 \text{ ave} \geq \Theta_2 \text{ ave}$  will be satisfied by Fiedler's colloids since the relationship talks about an average size and the colloidal particles always have a distribution of particle sizes which will satisfy the above relationship especially since no absolute sizes are provided.

### ***Conclusion***

8. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Asok K. Sarkar whose telephone number is 571 272 1970. The examiner can normally be reached on Monday - Friday (8 AM- 5 PM).



If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, William B. Baumeister can be reached on 571 272 1722. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

10. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Asok K. Sarkar/  
Primary Examiner, Art Unit 2891

February 5, 2008